

Claims

- 1. Actor unit with a piezoelectric actor (1) disposed in a hollow body (4), the hollow body being elastic and biasing the actor, characterized in that the hollow body (4) is joined tensionally and/or positively to the upper and lower end of the actor, the hollow body being provided with holes (41) which are of a dumb-bell shape and run transversely of the hollow body's axis.
- 2. Actor unit according to claim 1 characterized in that the piezoelectric actor (1) is gripped in its direction of expansion between an upper and a lower cover plate (5, 6) which are tensionally and/or positively joined to the hollow body.
- 3. Hollow body for biasing a piezoelectric actor, the hollow body being made elastic, characterized in that the hollow body is provided with holes (41) which are of a dumb-bell shape and run transversely of the hollow body's axis.
- 4. Actor unit according to claim 1 or 2 or hollow body according to claim 3, characterized in that the holes are arranged in rows one above the other, the holes of the rows being laterally offset from one another.
- 5. Actor unit according to any one of claims 1, 2 or 4, or hollow body according to claim 3 or 4, characterized in that the minimum distance between adjacent holes (41) of two rows is one or three times the wall thickness of the hollow body (4).
- 6. Actor unit according to any one of claims 1, 2, 4 or 5, or hollow body according to any one of claims 3 to 5, characterized in that the holes (41) are distributed uniformly over the circumference of the hollow body (4).
- 7. Actor unit according to any one of claims 1, 2, 4 to 6 or hollow body according to any one of claims 3 to 6, wherein the hollow body (4) is made of spring steel and the holes (41) are punched.
- 8. Actor unit according to any one of claims 1, 2, 4-to 7-or-hollow-body-according-to-any one of claims 3 to 7, characterized in that the hollow body (4) has at least one weld seam which joins together two abutting edges of the hollow body.
- 9. Actor unit according to any one of claims 1, 2, 4 to 8 or hollow body according to any one of claims 3 to 8, characterized in that the hollow body (4) has two abutment edges which are associated with one another and extend over the entire length of the hollow body.
- 10. Actor unit according to any one of claims 1, 2, 4 to 2 or hollow body according to any one of claims 3 to 9, characterized in that the marginal areas of the holes (41) are at least partially compressed.



- 11. Elastic hollow body for biasing an actor (1), the hollow body being made from a flat (71) into which holes (73) are made by punching, characterized in that the side (A) of the flat into which a punch (70) has penetrated in the stamping operation is disposed on the outer side of the hollow body.
- Method for the production of an elastic hollow body for biasing an actor (1), by the following process steps:
 - a hole (73) is made in a flat (71) with a punch (70),
 - the punch (70) penetrates into the flat (71) on the upper side (A) of the flat and punches out a portion of the flat on the underside (B),
 - the flat (71) lying on a die (72),
 - then the flat (71) is formed into a sleeve and edges in contact with one another are joined,
 - characterized in that,
 - upon the forming of the sleeve the upper side (A) is disposed on the outer side and the bottom (B) of the flat (71) is disposed on the inner side of the sleeve.